

WHAT IS CLAIMED IS:

1           1. A fermentation composition for treatment of aquatic environments, the composition  
2 comprising:

3           an activated organic matrix, beneficial saprophytic bacteria, beneficial hydrolytic  
4 enzymes, and soluble humatic compounds.

1           2. The composition according to Claim 1 wherein the activated organic matrix is  
2 comprised of one or more products selected from a group consisting of wheat, barley or rye straw,  
3 ground, whole-grain barley grain and wheat bran.

1           3. The composition according to Claim 1 wherein said beneficial saprophytic bacteria  
2 are composed of one or more strains selected from the group consisting of *Bacillus subtilis*, *Bacillus*  
3 *licheniformis*, *Bacillus amyloliquefaciens*, *Paenibacillus polymyxa*, *Bacillus megaterium*, *Bacillus*  
4 *psychrophilus*, *Bacillus globiformis*, *Bacillus psychrosaccharolyticus*, *Bacillus benzovorans*, *Bacillus*  
5 *vallismortis*, *Bacillus mojavensis*, *Bacillus stearothermophilus*, and *Bacillus acidopullitycus*.

1           4. The composition according to Claim 1 wherein the organic matrix is activated by  
2 fermentation in the presence of beneficial saprophytic bacteria.

1           5. The composition according to Claim 1 wherein the hydrolytic enzymes are produced  
2 during the fermentation of the organic matrix by the beneficial saprophytic bacteria.

1        6.     The composition according to Claim 1 wherein the soluble humatic compounds are  
2     produced by the fermentation of the organic matrix by the beneficial saprophytic bacteria.

1        7.     The composition according to Claim 1 wherein the organic matrix is comprised of  
2     from 10% to 75% wheat straw and wheat bran.

1        8.     The composition according to Claim 1 wherein the organic matrix is comprised of  
2     from 10% to 75% other straw or grain products.

1        9.     The composition according to Claim 1 wherein the organic matrix is comprised of  
2     from 10% to 98% barley and/or grain.

1        10.    The composition according to Claim 1 wherein the composition is a dry granulated  
2     fermentation product.

1        11.    A method for producing a dried granular fermentation product for the treatment of  
2     aquatic environments comprising the following steps:

- 3            (a)     providing an organic matrix;
- 4            (b)     adding water in the amount of 35% to 60% by weight based on the weight of  
5                        the total composition to said organic matrix;
- 6            (c)     steam pasteurizing the organic matrix;
- 7            (d)     inoculating the pasteurized organic matrix with seed bacterium;

- (e) incubating the organic matrix until bacterial growth occurs; and
- (f) drying the organic matrix to immobilize the saprophytic bacteria.

1           12. A method as set forth in Claim 11 including the additional step of chopping said  
2           organic matrix into pieces from about .2 cm to about 5 cm in length prior to said addition of water.

1           13.     A method as set forth in Claim 11 including the additional steps of adding additional  
2     nutrients to said organic matrix to accelerate growth of bacteria and adding buffering salts to the  
3     organic matrix to control pH for optimum bacterial growth prior to stream pasteurization.

14. A method as set forth in Claim 11 including the additional step of grinding the organic matrix after said drying to create a dried granular fermentation product.

15. A method for treating an aquatic environment comprising the steps of:  
adding a fermentation composition of an actuated organic matrix, beneficial  
harmful bacteria, beneficial hydrolytic enzymes, and soluble humatic compounds to the aquatic  
environment in an amount sufficient to reduce growth of algae in the aquatic environment.